

Date: Wed, 15 Jun 94 04:30:13 PDT
From: Ham-Ant Mailing List and Newsgroup <ham-ant@ucsd.edu>
Errors-To: Ham-Ant-Errors@UCSD.Edu
Reply-To: Ham-Ant@UCSD.Edu
Precedence: Bulk
Subject: Ham-Ant Digest V94 #187
To: Ham-Ant

Ham-Ant Digest Wed, 15 Jun 94 Volume 94 : Issue 187

Today's Topics:

2 rx antennas on a repeater? how to?
Curing RF Voltage on Rig case in Mobi

Send Replies or notes for publication to: <Ham-Ant@UCSD.Edu>
Send subscription requests to: <Ham-Ant-REQUEST@UCSD.Edu>
Problems you can't solve otherwise to brian@ucsd.edu.

Archives of past issues of the Ham-Ant Digest are available
(by FTP only) from UCSD.Edu in directory "mailarchives/ham-ant".

We trust that readers are intelligent enough to realize that all text
herein consists of personal comments and does not represent the official
policies or positions of any party. Your mileage may vary. So there.

Date: Tue, 14 Jun 1994 11:33:34 -0400
From: ftpbox!mothost!lmpsbbs!NewsWatcher!user@uunet.uu.net
Subject: 2 rx antennas on a repeater? how to?
To: ham-ant@ucsd.edu

In article <2ta1teINNic7@newsstand.cit.cornell.edu>, F. Kevin Feeney
<fkf1@cornell.edu> wrote:

> Hi,
>
> Our repeater group has a semi-wide coverage machine
> in an advantageous position that has served well for
> many years. However the geography around here is
> hilly and has some rough areas - i.e. coverage isn't
> uniform. We have some members who are now making
> a long commute in the direction where we don't have
> such good coverage and the question has come "can't
> we do better down that way so we can chat on our
> commute?" which seems reasonable to me. We could
> go to a directional antenna favoring that direction,
> but that will change the coverage in our normal

> service area. I think we can get the transmitter
> heard where they need it by boosting the power a
> couple of db, so I'm more concerned with the
> receive aspect of it.

There's no reason to increase transmit power everywhere when you only need more of it in one direction, unless you enjoy paying the power company every month and causing "alligator" interference much further out than you can hear.

> My question is can I do some sort of relatively
> simple merging of our normal omni rx antenna and
> a beam aimed to favor the desired area? I'm aware
> of the impedance issues of blending the two,
> I'm thinking we'd build some sort of buffer/combiner
> but I'm more interested how the two antennas will
> interact with phasing of incoming signals and such.

It is quite easy and common to use a power divider/impedance transformer to drive both a directional antenna and an omni from one feedline. For FM you will need at least 4 dB MORE gain from the yagi than the omni to notice

any great improvement in signal quieting. Just mount the yagi below the omni, making sure that you have the optimum separation distance $L/2$ and phasing of the driven elements. IE, if the center of the coax feeds the top half of the 4 bay dipoles, the center should also feed the top of the yagi or corner reflector's driven element. If you are using a fiberglass antenna, always assume that the center conductor feeds the top.

> They'll be far enough apart on the tower to not interact
> field wise, but I don't want to end up with all kinds of
> nulls in the pattern because of multipath type selective
> fading.

You will ALWAYS have more nulls and wiggles in the pattern when you try to reshape the antenna pattern. The tradeoff for putting more signal in one direction is that you have to give up some in the other directions.

>
> I'm sure this problem must have come up for others.
> Can anybody put me on the path to some solutions?
>
> (alternatives that come to mind is let the controller
> select between rx antennas with a relay on tone command
> when someone is travelling that route)

That approach requires either a very reliable weatherproof relay and a control line or two runs of antenna cable. What happens if they forget to switch the antenna back to omni, or want to communicate with someone else beyond the fringe of the new directional?

>
> Thanks
>
> Kevin, WB2EMS

--
Karl Beckman, P.E. < Genius may have its limitations, but >
Motorola LMPs- Analog Data < stupidity is not thus handicapped. >
< - Elbert Hubbard >
The statements and opinions expressed here are not those of Motorola Inc.
Amateur radio WA8NVW @ K8MR.NEOH.USA.NA NavyMARS VBH @ NOGBN.NOASI

Date: Tue, 14 Jun 1994 11:09:31 -0400
From: ftpbox!mothost!lmpsbbs!NewsWatcher!user@uunet.uu.net
Subject: Curing RF Voltage on Rig case in Mobi
To: ham-ant@ucsd.edu

In article <2te4d4\$g4p@chnews.intel.com>, cmoore@ilx018.intel.com (Cecil A. Moore -FT--~) wrote:

> S. A. Modena (samodena@csemail.cropsci.ncsu.edu) wrote:
>
> : Important question:
> : if the RF *energy* is always confined between the opposite conducting
> : surfaceS, where is the energy confined? Answer: in the space between
> : the verticle whip and the *interior* surface of your car...via the
> : window openings! Well that is not a happy situation...because we
> : have described a Moiblus Surface and it gets RF angry and confused...
> : and it *bites* you on the lip for revenge! :^)
> : 73/Steve/AB4EL nmodena@unity.ncsu.edu
>
> Hi Steve, Can you explain my problem. I have my bumper mounted mobile
> antenna grounded outside at the bumper with a choke balun on the
> transmission line. That ground was the only one in the system. Inside
> the cab, I have a separate battery and transceiver. I had RF in the cab
> something fierce. A two-foot ground wire from my transceiver to the
> S10 chassis lowered the RF in the cab to a neglibile value. Do those
> results agree with what you said above? Where was my RF in the cab
> coming from and where did it go?
>
> 73, KG7BK, 00TC, CecilMoore@delphi.com

This one is easy! The RF in the cab was the same RF that is on the outside of the coax, thanks to your one point ground. I'll bet your coax was a resonant or at least significant (greater than .05 wavelength) length beyond the choke balun, so you found the standing waves. To eliminate the RF burns, ALWAYS ground the rig itself via a short wire to the inside of the vehicle frame. This keeps the case at nearly the same RF potential as the car body, and if the potential difference is near zero, you don't get "bit."

BTW, if using one of the newer automatic tuners, you can see voltages in excess of 5 kV at the antenna base with only 40 watts. Be sure the lead from tuner to antenna mount can handle those voltage levels - RG-58 cannot!

--

Karl Beckman, P.E. < Genius may have its limitations, but >
Motorola LMPS- Analog Data < stupidity is not thus handicapped. >
< - Elbert Hubbard >

The statements and opinions expressed here are not those of Motorola Inc.
Amateur radio WA8NVW @ K8MR.NEOH.USA.NA NavyMARS VBH @ NOGBN.NOASI

Date: Tue, 14 Jun 1994 16:58:54 GMT
From: psinntp!arrl.org!zlau@uunet.uu.net
To: ham-ant@ucsd.edu

References <Cr1wys.EC1@ncifcrf.gov>, <2td61l\$h5f@btree.brooktree.com>,
<1994Jun13.133445.5736@ke4zv.atl.ga.us>=Y
Subject : Re: Balloon

Gary Coffman (gary@ke4zv.atl.ga.us) wrote:
: >an essentially constant angle from the anchor point.

: There's an easier way, use a "zeppelin" balloon. You see these used for
: advertising. They look like little bitty blimps. They'll nose into any
: wind, and the fins can be set to make them climb *into* the wind. So they
: do the same thing as a kite/balloon all in one envelope, and can keep
: your wire near vertical under all conditions. They cost a bit more than
: weather balloons, but they're more durable.

The dinner speaker at the last West Coast VHF conference uses one.
Remember his name as Scott Bovitz, though I'm not sure.
As I remember, the one he uses is about 17 ft long, took \$100
worth of helium to fill, and takes 2 hours to deflate! He got one
that they made a mistake on the advertising slogan--and they painted
that over for him. An advantage is that these are big enough to pull
up a pair of ropes in addition to the wire. Not sure what you can
do about people looking for target practice, though.

--

Zack Lau KH6CP/1 2 way QRP WAS
 8 States on 10 GHz
Internet: zlau@arrl.org 10 grids on 2304 MHz

End of Ham-Ant Digest V94 #187
